

Lucia Catherine Petito, Ph.D.

Department of Epidemiology | Harvard T.H. Chan School of Public Health
Kresge 8th Floor, 677 Huntington Ave., Boston, MA 02115
(301) 633-5983 | petito@hsph.harvard.edu

Education

2017 – present	Harvard T.H. Chan School of Public Health Postdoctoral fellow in Epidemiology Advisor: Miguel Hernán
2014 – 2017	University of California, Berkeley Doctor of Philosophy in Biostatistics “Topics in survival analysis” Dissertation Committee: Nicholas P. Jewell (chair), Alan Hubbard, Barbara Abrams
2012 – 2014	University of California, Berkeley Master of Arts in Biostatistics Advisor: Nicholas P. Jewell
2008 – 2012	University of Rochester Bachelor of Science in Mathematics, cum Laude, high distinction Eastman School of Music Bachelor of Music in Violin Performance

Honors and Awards

2017	Chin Long Chang Biostatistics Student of the Year
2016	Graduate Division Conference Travel Grant, UC Berkeley
2016	Student Poster Prize, Maternal and Child Health Symposium, UC Berkeley
2015	Hubbard-Selvin Fellowship, UC Berkeley
2014	Outstanding Graduate Student Instructor, UC Berkeley
2012	Outstanding Student Award, U. of Rochester Mathematics Department
2012	Outstanding Presentation Award, Joint Mathematics Meetings

Research Interests

- Development and application of causal inference methods for observational data
- Nonparametric estimation in survival analysis
- Application of machine learning algorithms in causal inference for big data
- Statistics education

Research Experience

Postdoctoral Research Fellow

T.H. Chan School of Public Health, Harvard University

2017 – present *Under Professor Miguel Hernán (Harvard University)*
Development and application of methodology to draw causal inferences from complex longitudinal data structures. Used target trial methodology in comparative effectiveness research for chemotherapy regimens in linked SEER-Medicare database. Worked on a team developing an R package to implement the g-formula.

Graduate Student Researcher

School of Public Health, University of California, Berkeley

2013 – 2017 *Under Professor Nicholas P. Jewell (UC Berkeley)*
Developed an expectation-maximization algorithm for nonparametric estimation of the cumulative distribution function of a time-to-event variable from misclassified group tested current status data

2014 – 2017 *Under Professor Barbara Abrams (UC Berkeley)*
Provided statistical consulting for multiple projects in perinatal, nutritional, and social epidemiology. Performed data analyses in the National Longitudinal Survey of Youth 1979, the Conditions Affecting Neurocognitive Development and Learning in Early Childhood study, the U.S. National Birth Data Files, and the Swedish National Birth Registry Data and corresponding electronic medical records.

2013 – 2015 *Under Professor Mahasin Mujahid (UC Berkeley)*
Compared methods to adjust for correlation between observations on individuals in the same neighborhood when estimating relative risks of ideal cardiovascular health in the Multi-Ethnic Study of Atherosclerosis.

Genentech Summer Internship Program - Real World Data Science

Immunology, Infectious Disease, and Ophthalmology, Genentech, South San Francisco, CA

Summer 2016 *With Research Scientist Sara Gale*
Used a marginal structural model to study the relationship between inflammation, lipids, and disease activity and risk of cardiovascular disease in patients with moderate to severe rheumatoid arthritis taking Tocilizumab.

National Institutes of Health Summer Internship Program

National Cancer Institute, Division of Cancer Epidemiology and Genetics, Rockville, MD

Summers
2012, 2014 *With Senior Investigator Hormuzd Katki (Biostatistics Branch)*
Evaluated and compared performance of lung cancer incidence and mortality risk models in two large U.S. cohorts; developed imputation model to adjust for missing estrogen receptor status when evaluating trends in secondary ovarian cancer

National Science Foundation Research Experience for Undergraduates

Summer 2011 *With Professor Anant Godbole (East Tennessee State University)*
Worked in probabilistic graph theory to develop a bound on the hitting number of a random set system

Summer 2010 *With Professor Neil Lyall (University of Georgia, Athens)*

Summer Mathematics Program for Women at Carleton College

Summer 2009 Took introduction to topology (Erica Flapan, Pomona College) and introduction to number theory (Margaret Robinson, Mt. Holyoke College).

Teaching Experience

Department of Population Health Sciences, Northeastern University SPH

Fall 2018 **Part-time Lecturer – Introduction to Causal Inference**
Teaching an introductory causal inference course aimed at 2nd year PhD students in Population Health Sciences. Course meets once per week for 2 hours. Students complete weekly critical reviews of journal articles as well as bi-weekly homework assignments. A final project is required to demonstrate competency.

Department of Epidemiology, Harvard T.H. Chan School of Public Health

Fall 2018 **Kolokotronis Fellow**

Spring 2018 Facilitated four Kolokotronis Symposia on Data Science, monthly gatherings focused on discussing methodologic issues that arise in data science in a relaxed setting. Identified a topic and speakers for each symposium, provided feedback to speakers in advance to ensure a coherent flow of ideas and exciting discussion, advertised the program, and coordinated all logistics.

Spring 2018 **Statistical consultant for MPH Capstone Projects**
Worked with masters of public health in clinical epidemiology students needing statistical help to finish their capstone thesis projects. Provided one-on-one

consultations, helped to develop project design, wrote and edited Stata and SAS code, aided with result interpretation and presentation.

Department of Medical Epidemiology and Biostatistics, Karolinska Institutet

Oct. 2018 Teaching Assistant for Applied Longitudinal Data Analysis

Sept. 2016-7 Wrote lab exercises and solutions to reinforce ideas presented in a 7-day short course for PhD students in Epidemiology and Biostatistics. Material spanned generalized estimating equations and mixed effects models, inverse probability weighting for time-dependent confounding, and trajectory analysis. Taught a 3-hour Stata lab each day and consulted on student projects.

Division of Biostatistics, University of California, Berkeley

Spring 2016 Course Facilitator

Developed a syllabus and course materials for a seminar class designed for masters students in Biostatistics entitled “Special Topics in Biostatistics.” Taught class for one hour per week for 7 weeks; covered reproducible research, multiple imputation techniques, and statistical analysis of complex surveys

2013 – 2016 Graduate Student Instructor

Courses: Introduction to Probability and Statistics for Public Health Students (2); Statistical Analysis of Categorical Data (2); Longitudinal Data Analysis (2); Introduction to Modern Biostatistical Methodology (1), Causal Inference I (1)

Taught both computer-based (Stata and R) and chalkboard discussion sessions; held weekly office hours; assisted with creating and grading assignments; developed laboratory course materials for Longitudinal Data Analysis course.

Mathematics Department, University of Rochester

2008 – 2012 Teaching Assistant

Courses: Honors Calculus I (2); Honors Calculus II (2); Honors Calculus III (1); Honors Linear Algebra (1); Calculus II (1); Calculus III (1); Mathematical Modeling in the Biological Sciences (1)

Led workshop-style problem sessions for honors courses; taught recitations; assisted with grading

Publications

Manuscripts published

Katki, H.*, Kovalchik, S.*, **Petito, L.C.**, Cheung, L., Jacobs, E., Jemal, A., Berg, C., Chaturvedi, A.K. Implications of nine risk prediction models for selecting ever-smokers for computed tomography lung cancer screening. *Annals of Internal Medicine* May 2018 doi: 10.7326/M17-2701.

Leonard, S., Hutcheon, J., Bodnar, L., **Petito, L.C.**, Abrams, B. Gestational weight gain-for-gestational age z-score charts applied across U.S. populations. *Paediatric and Perinatal Epidemiology* November 2017; 32(2):161-171.

Deardorff, J., Smith, L., **Petito, L.**, Kim, H., Abrams, B. Maternal prepregnancy weight and children's behavioral and emotional outcomes. *American Journal of Preventive Medicine* October 2017; 53(4):432-440.

Leonard, S., **Petito, L.C.**, Rehkopf, D., Ritchie, L., Abrams, B. Maternal history of child abuse and obesity risk in offspring: mediation by weight in pregnancy. *Childhood Obesity* August 2017; 13(4):259-266.

Petito, L.C.*, Leonard, S.*, Stephansson, O., Hutcheon, J., Bodnar, L., Mujahid, M., Cheng, Y., Abrams, B. Weight gain in pregnancy and the black-white disparity in preterm birth. *Annals of Epidemiology* May 2017; 27(5):323-328.

Pear, V, **Petito, L.C.**, Abrams, B. The role of maternal adverse childhood experiences and race in intergenerational high-risk smoking behaviors. *Nicotine & Tobacco Research* May 2017; 19(5):623-630.

Mujahid M., Moore L., **Petito, L.C.**, Kershaw, K., Watson, K., Diez Roux, A. Neighborhoods and racial/ethnic differences in ideal cardiovascular health (the Multi-Ethnic Study of Atherosclerosis). *Health & Place* March 2017; 44:61-69, doi: 10.1016/j.healthplace.2017.01.005.

Petito, L.C., Jewell, N.P. Misclassified group tested current status data. *Biometrika* December 2016; 103(4):801-15.

Leonard, S., **Petito, L.C.**, Rehkopf, D., Ritchie, L., Abrams, B. Weight gain in pregnancy and child weight status from birth to adulthood in the United States. *Pediatric Obesity* June 2016, doi: 10.1111/ijpo.12163.

Ranchod, Y., Headen, I., **Petito, L.**, Deardorff, J., Rehkoph, D., Abrams, B. Maternal childhood adversity, prepregnancy obesity and gestational weight gain. *American Journal of Preventative Medicine* February 2016; 50(4):463-9.

Jamieson, J., Godbole, A., Jamieson, W., **Petito, L.** Sharp concentration of hitting size for random set systems. *Graphs and Combinatorics* 2015; 31: 639-648.

George, B., Teitelbaum, E., Meyerson, S., Schuller, M., DaRosa, D., Petrusa, E., **Petito, L.C.**, Fryer, J. Reliability, validity, and feasibility of the Zwisch scale for the assessment of intraoperative performance, *Journal of Surgical Education*, 71.6 (2014): e90-e96.

Anderson, W., Rosenberg, P., **Petito, L.C.**, Katki, H., Ejlersen, B., Ewertz, M., Rasmussen, B., Jensen, M. and Kroman, N. Divergent estrogen receptor-positive and -negative breast cancer trends and etiologic heterogeneity in Denmark. *International Journal of Cancer* 2013; 133: 2201-2206.

Manuscripts under revision or review

Gamba, R., Leung, C., **Petito, L.**, Abrams, B., Laraia, B. Sugar sweetened beverage consumption in pregnant women is associated with greater caloric intake and lower diet quality. Submitted July 2018.

Smith, L., **Petito, L.**, Cohen, A., Deardorff, J., Rehkopf, D., Abrams, B. Gestational weight gain, birthweight, and math and reading achievement among U.S. children. Submitted July 2016.

Manuscripts in progress

Petito, L.C., Johansson, K., Leonard, S., Stephansson, O., Jewell, N.P., Abrams, B. A comparison of analytic methods to assess the relationship between preterm birth and gestational weight gain.

Petito, L.C., Garcia de Albeniz, X., Mariotto, A., Howlander, N., Hernán, M. Methodological considerations for using SEER/Medicare data to emulate chemotherapy effectiveness trials: an example in pancreatic cancer.

Petito, L.C., Sarsour, K., Gale, S., Klearman, M., Musselman, D. Using marginal structural models to evaluate the relationship between rheumatoid arthritis disease activity and lipid levels and risk of major adverse cardiac events in a meta-study of patients taking tocilizumab.

Computer Skills

Expert use of R, Stata, SAS, Excel, LaTeX, Beamer, RShiny; experience with SQL, Python, github

Conference Presentations and Invited Talks

- 2018 Department of Medical Statistics, London School of Hygiene and Tropical Medicine, London, England
Invited Talk
“Studying chemotherapy effectiveness in SEER-Medicare data”
- 2018 Joint Statistical Meetings, Vancouver, BC, Canada
Contributed Speed Talk and Contributed Poster
Petito, L.C., Swanson, S.A., and Hernán, M.A. “A comparison of methods to estimate survival curves under time-varying treatments”
- 2017 Joint Statistical Meetings, Baltimore, MD
Contributed Paper Session
Petito, L.C. and Jewell, N.P. “A comparison of statistical methods to evaluate the relationship between gestational weight gain and gestational age at birth.”
- 2016 Clinical Epidemiology Unit, Department of Medicine, Karolinska Institutet, Stockholm, Sweden
Invited Talk
“Weight gain during pregnancy and the black-white disparity in preterm birth in the United States”
- 2016 Society of Paediatric and Perinatal Epidemiological Research, Miami, FL
Poster Session
Petito, L., Leonard, S., Stephansson, O., Hutcheon, J., Bodnar, L., Cheng, Y., Abrams, B. “Gestational weight gain and the black-white disparity in preterm birth.”
- 2016 Maternal and Child Health Symposium, Berkeley, CA
Contributed Poster Session
Petito, L., Leonard, S., Rehkopf, D., Ritchie, L., Abrams, B. “Adverse childhood experiences, offspring obesity in early childhood, and gestational weight gain.”
- 2015 Joint Statistical Meetings, Seattle, WA
Contributed Paper Session
Petito, L.C. and Jewell, N.P. “An exploration into grouped current status data.”
- 2015 MathFest, Washington, D.C.
General Contributed Paper Session: Probability or Statistics
Petito, L.C. and Jewell, N.P. “An exploration into grouped current status data.”
- 2015 Society of Paediatric and Perinatal Epidemiological Research, Denver, CO
Poster Session

Petito, L., Deardorff, J., Kim, H., Smith, L., Abrams, B. "Maternal pregnancy-related weight and childhood behavioral and emotional development in NLSY."

- 2014 National Institutes of Health Summer Research Program, Bethesda, MD
Summer Poster Session
Petito, L., Kovalchik, S., Jacobs, E., Ahemedin, J., Hollenbeck, A., Chaturvedi, A., Katki, H. "Performance of lung cancer incidence and lung cancer mortality risk prediction models in US smokers."
- 2012 National Institutes of Health Summer Research Program, Bethesda, MD
Summer Poster Session
Petito, L., and Katki, H. "A simple method to correct for missing estrogen-receptor data in breast cancers for SEER analyses."
- 2012 Joint Mathematics Meetings, Boston, MA
Contributed Paper Session, Student Poster Session
Deering, J., Godbole, A., Jamieson, W., Petito, L. "Hitting Set Size for Random Set Systems."
Godbole, A., Petito, L., Warkentin, S. "Yelling in Circles."
- 2011 Fall Meeting of the Seaway Section of the MAA, St. Bonaventure University, NY
Student Paper Session
Godbole, A., Petito, L., Warkentin, S. "Yelling in Circles."
- 2011 MathFest, Lexington, KY
Student Paper Sessions
Deering, J., Godbole, A., Jamieson, W., Petito, L. "Hitting Set Size for Random Set Systems."
Godbole, A., Petito, L., Warkentin, S. "Yelling in Circles."

Professional Service

Journal Referee

- 2017 Biometrika, International Journal of Obesity
2018 Pediatric Research, The American Statistician

University Committees

- 2018 *Postdoctoral representative* - Advisory Committee on Sexual Assault & Harassment Prevention at Harvard T.H. Chan School of Public Health
- 2016 *Student Representative* - Graduate Student Admissions Committee for M.A. and Ph.D. Biostatistics Admits at UC Berkeley

2015 – 2016 *Student Representative - Biostatistics Tenure-Track Faculty Search Committee at UC Berkeley*

Trainee Councils

2018 – *Social co-chair of the Harvard T.H. Chan School of Public Health Postdoctoral Association*
Began brown bag lunch series for new postdocs
Organized faculty-postdoc mixer, monthly happy hours, community volunteering events
Began an annual research symposium for postdoctoral research fellows that includes research talks from each division, professional development workshops, and wellness activities

2014 – 2016 *Co-president of Biostatistics Graduate Student Association at UC Berkeley*
Acted as liaison between students and faculty
Initiated coffee hour before weekly causal inference seminar
Assisted with the organization and execution of prospective student visit day and new student orientation
Organized student seminar series Spring 2015. Material included tutorials in R package development, github.com use, ggplot2 graphics creation, and RShiny application creation